

Recd PCT/PPI 20 OCT 2004

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
6 November 2003 (06.11.2003)

PCT

(10) International Publication Number  
**WO 03/092163 A3**

(51) International Patent Classification<sup>7</sup>: **H03M 1/08**

(21) International Application Number: **PCT/IB03/01010**

(22) International Filing Date: 19 March 2003 (19.03.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
02076643.2 25 April 2002 (25.04.2002) EP

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(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

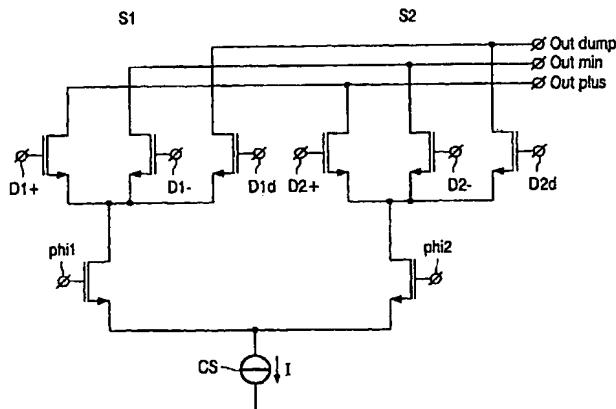
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:  
24 December 2003

[Continued on next page]

(54) Title: DIGITAL TO ANALOG CONVERSION



A3  
WO 03/092163

(57) Abstract: A unit cell for a digital to analog conversion circuit comprising; a current source (CS); a first data switch (S1) coupled to the current source (CS); a second data switch (S2) coupled to the current source (CS); a first phase switch (Phi1) coupled between the current source (CS) and the first data switch (S1); a second phase switch (Phi2) coupled between the current source (CS) and the second data switch (S2); a controller arranged to switch between the first (Phi1) and second (Phi2) phase switches in a Break Before Make alternating sequence, and to switch the first (S1) and second (S2) data switches in a Make Before Break sequence. A digital to analog convector circuit constructed using unit cells according to the invention is more area and power efficient than the previously known circuit because it uses only one current source, yet it succeeds in preventing short-circuit error currents between the outputs and solves the problems caused by pulse asymmetry and the influence of switch-charge injection, and provides more linear and better quality output signals.

## INTERNATIONAL SEARCH REPORT

Internal Application No  
PCT/1D 03/01010

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 H03M1/08

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 H03M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 059 977 A (HERMAN RAY M ET AL) 22 October 1991 (1991-10-22) column 8, line 25 -column 10, line 32 -----	1-6
A	US 4 908 620 A (FUJISAWA AKIHIKO) 13 March 1990 (1990-03-13) column 4, line 62 -column 9, line 6 -----	1-6
A	PATENT ABSTRACTS OF JAPAN Vol. 1998, no. 11, 30 September 1998 (1998-09-30) -& JP 10 171415 A (MATSUSHITA ELECTRIC IND CO LTD), 26 June 1998 (1998-06-26) abstract -----	1-6

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Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the International search report
21 October 2003	30/10/2003
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax (+31-70) 340-3016	Authorized officer  Villafuerte Abrego

## INTERNATIONAL SEARCH REPORT

Internal ref.	Application No
PCT/EP	03/01010

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
US 5059977	A 22-10-1991	NONE		
US 4908620	A 13-03-1990	JP 1202925 A		15-08-1989
JP 10171415	A 26-06-1998	JP 3437396 B2		18-08-2003